TM033

Claims

1-22 Canceled

23. (New) A vehicle sensor (4) for detecting impact sound, the sensor comprising:

a measured-value sensor (4.1) for detecting the impact sound; and

multiple individual, separate measured-value sensing elements (4.1.x), each of which is coupled to a vehicle structure (5) in such a way that impact sound waves are transmitted by the vehicle structure (5) to the measured-value sensing elements (4.1.x), wherein the measured-value sensor is a piezoelectric, piezoresistive or capacitive measured-value sensor and that the individual, separate measured-value sensing elements are arranged as electrodes in a two-dimensional form in the measured-value sensor.

24. (New) A vehicle sensor according to claim 23, wherein the individual, separate measured-value sensing elements are arranged at the measured-value sensor as electrodes in form of a facet structure or of an array.

25. (New) A vehicle sensor according to claim 24, wherein the individual, separate measured-value sensing elements on one side of the measured-value sensor comprise a mutual electrode (4.1.1) and on the opposite side of the measured-value sensor in facet structure or array form individual electrodes (4.1.3/4.1.4), respectively.

26. (New) A vehicle sensor (4) for detecting impact sound, the sensor comprising:

a measured-value sensor (4.1) for detecting the impact sound; and

multiple individual, separate measured-value sensing elements (4.1.x), each of which is coupled to a vehicle structure (5) in such a way that impact sound waves

are transmitted by the vehicle structure (5) to the measured-value sensing elements (4.1.x), wherein the measured-value sensing elements (4.1.x) are coupled to the vehicle structure (5) by an elastic (7.1) or a visco-elastic (7.2) coupling layer for transmitting the impact sound waves.

27. (New) A vehicle sensor according to claim 26, wherein the visco-elastic coupling layer (7.2) is formed as a mutual layer extending over the surface of all measured-value sensing elements (4.1.x) between the measured-value sensing elements (4.1.x) and the vehicle structure (5) or is embodied in form of separate nubs (7.2.1) between the measured-value sensing elements (4.1.x) and the vehicle structure (5).

28. (New) A vehicle sensor according to claim 26, wherein a matrix is arranged between the measured-value sensing elements (4.1.x) and the vehicle structure (5), the matrix having recesses between the measured-value sensing elements (4.1.x) and the vehicle structure (5), and the visco-elastic coupling layer (7.2) is embodied in form of fillings (7.2.3) of the recesses.

29. (New) A vehicle sensor according to claim 26, wherein the measured value sensor is a piezoelectric, piezoresistive or capacitive sensor and the individual, separate measured-value sensing elements are arranged at the measured-value sensor as electrodes in form of a facet structure or of an array.

30. (New) A vehicle sensor according to claim 26, the multiple individual, separate measured-value sensing elements comprise at least eight measured-value sensing elements (4.1.3, 4.1.4).

31. (New) A vehicle sensor according to claim 26, wherein the measured-value sensing elements (4.1.5, 4.1.6) are arranged in form of a digital structure or of a self-testing

structure.

32. (New) A vehicle sensor according to claim 26, wherein dimensions of the measured-value sensing elements (4.1.x) are smaller than a smallest wave length to be detected of the impact sound.

33. (New) A vehicle sensor according to claim 26, wherein dimensions of the measured-value sensing elements (4.1.x) are greater than a greatest wave length to be detected of the impact sound.

34. (New) A vehicle sensor according to claim 26 further comprising: a carrier (4.3) for the measured-value sensor (4.1), wherein the carrier is embodied as a substrate, a wiring carrier or a foil.

35. (New) A vehicle sensor according to claim 34, wherein the measured-value sensor (4.1) is connected to the carrier (4.3) via a force-fit and form-fit connection (4.8.1, 4.8.3).

36. (New) A vehicle sensor according to claim 35, wherein the form-fit connection (4.8.1, 4.8.3) between the measured-value sensor (4.1) and the carrier (4.3) is a glued spot or a contact layer.

37. (New) A vehicle sensor according to claim 26 further comprising: an acceleration sensor (4.4).

38. (New) A vehicle sensor according to claim 26, wherein the measured-value sensing elements (4.1.x) are coupled to the vehicle structure (5) via at least one mechanical contact point (11.1) for transmitting the impact sound waves.

39. (New) A vehicle sensor according to claim 38, wherein the mechanical contact point is cone shaped, the base area of the cone being circular or oval.

40. (New) A vehicle sensor according to claim 38, wherein distances between the mechanical contact points (11.1) are smaller than the smallest wave length to be detected of the impact sound.

41. (New) A vehicle sensor according to claim 38, wherein distances between the mechanical contact points (11.1) are greater than the greatest wave length to be detected of the impact sound.

42. (New) A vehicle sensor according to claim 26, wherein the vehicle sensor is used in conjunction with a safety device of a vehicle.

43. (New) A vehicle sensor according to claim 26, wherein the vehicle sensor is used in conjunction with a diagnostic device of a vehicle.

44. (New) A vehicle sensor according to claim 26, wherein the vehicle sensor is provided in a vehicle for evaluating superimposed impact sound waves, which are independent from each other or for differentiating between superimposed impact sound waves, which are independent from each other, as a variable band pass and/or effective value creator or as a parameter estimator or for the determination of statistic characteristics.